National Assessment of Educational Progress (NAEP)- Instructional Time

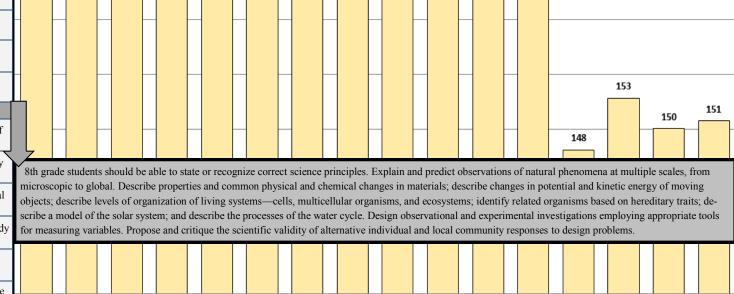
	N	anone	II HOOL	221110111	i vi Lui	Italivii	ui Piu	81099 ((NALP)	111911 U			1	
300														
215	Advanced													
175	Draw a conclusion about soil permea-	NA	YEP	Rth	Gra	ide N	JAF	P S	riena	e F	indi	ກດຣ	in 1	Л
175	bility using data—Partial (CR)	MON	NTANA	Oth	. Gra	iac i	1	1 50			ma.	iigs	111 1	1
174	Describe the competition between two species—Complete (CR)		ASSESSMENT CATIONAL OCRESS		_			_				_	_	
	Identify a function of a human organ		ZOMUJŲ.											
171	system (MC)	_		s should be			_	_						
170	Proficient			ts using pos										
167	Describe the evidence for chemical			lain visible multiple sca										
107		_		vestigations		-		-	_			-		
165	Describe the energy transfer between			nses to desi	_		1.,	.,						
	two systems—Complete (CR)													
162	Read a motion graph (MC)													
4==	Draw a conclusion based on fossil				455		165	165	165					
157	evidence (MC)	163	164	163	165	164	103		105		452	164	163	_
	Select and explain the useful properties of a material used in an industrial	103	1		1					163	163		103	
156	process—Partial (CR)													
153	Predict a geological consequence of						_		_	_			_	_
153	tectonic plate movement (MC)													
	Identify the mechanism of a weather													
151	pattern (MC)			Ш										
148	Recognize a factor that affects the													
141	success of a species (MC) Basic													
141														
136	Identify the sequence of formation of the Earth's features (MC)													
	Identify an example of kinetic energy	<u> </u>												_
134	(MC)			nts should b										
	Predict the effect of an environmental			lobal. Descr levels of or						_				
131	change on an organism (MC)			f the solar sy										
	Explain an experimental setup to study			riables. Pro			-		-	-		_		
128	populations of organisms (MC)													
107	Recognize how plants use sunlight													
127	(MC)													
122	Explain the effects of human land use on wildlife—Partial (CR)	Fort!	1:6-	Db	1 0"	Fanal	1:5-	Dhw=! 1	0	Fanth	1:6-	Dhw=!1	01	Τ
122	on whathe—I attai (CK)	Earth Science	Life Scienc	Physica e Science	l Overall Science		Life Science		Overall Science	Earth Science	Life Science	Physical Science		
0					1		'	'			'	'		Ι,
	☐ Gr 08 - 2011 - MT -		1-2	.9 hours			3-4.9	hours			5-6.9	hours		
	Instructional Time													
		NOTE:	The NAE	P Science sicant. SOU	RCE: U.S.	from 0 to 3 Department	00. Detail of Educat	may not s tion, Instit	sum to total ute of Educ	s because of ation Scient	of rounding nces, Natio	g. Some ap onal Center	parent diff for Educa	er



8th Grade NAEP Science Findings in Montana



8th grade students should be able to demonstrate relationships among closely related science principles. Identify evidence of chemical changes; explain and predict notions of objects using position time graphs; explain metabolism, growth, and reproduction in cells, organisms, and ecosystems; use observations of the Sun, Earth, and Moon to explain visible motions in the sky; and predict surface and ground water movements in different regions of the world. Explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle. Use evidence from investigations in arguments that accept, revise, or reject scientific models. Use scientific criteria to propose and critique alternative individual and local community responses to design problems.



NOTE: The NAEP Science scale ranges from 0 to 300. Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant. **SOURCE**: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Science Assessment.

Life

Science Science Science

7 hours or more

Earth

Physical Overall

Retrieved from http://nces.ed.gov/nationsreportcard/naepdata/dataset.aspx

National Assessment of Educational Progress (NAEP)- Emphasis on...

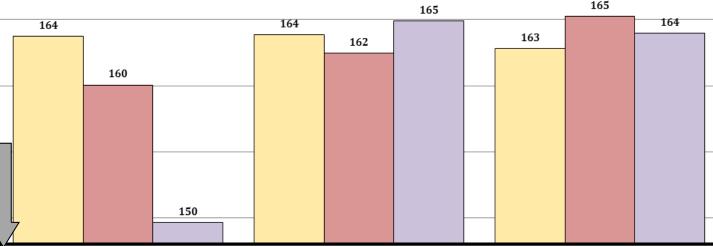
300							
215	Advanced						
	Draw a conclusion about soil permea-						
175	bility using data—Partial (CR)						
	Describe the competition between two						
174	species—Complete (CR)						
	Identify a function of a human organ						
171	system (MC)						
170	Proficient						
	Describe the evidence for chemical						
167	change—Partial (CR)						
	Describe the energy transfer between						
165	two systems—Complete (CR)						
4 4 5							
162	Read a motion graph (MC)						
	Draw a conclusion based on fossil						
157	evidence (MC)						
	Select and explain the useful properties						
4 = 4	of a material used in an industrial						
156	process—Partial (CR)						
153	Predict a geological consequence of						
	tectonic plate movement (MC)						
Identify the mechanism of a weath							
151	pattern (MC)						
1.40	Recognize a factor that affects the						
148	success of a species (MC)						
141	Basic						
106	Identify the sequence of formation of						
136	the Earth's features (MC)						
	Identify an example of kinetic energy						
134	(MC)						
	Predict the effect of an environmental						
131	change on an organism (MC)						
	Explain an experimental setup to study						
128	populations of organisms (MC)						
	Recognize how plants use sunlight						
127	(MC)						
	Explain the effects of human land use						
122	on wildlife—Partial (CR)						
	☐ Gr 08 - 2011 - MT - Emphasis						
0	Environmental Science						
	Gr 08 - 2011 - MT Emphasis						
☐ Gr 08 - 2011 - MT - Emphasis Further Study							
□ Gr 08 - 2011 - MT - Emphasis on Facts & Principles							



8th Grade NAEP Science Findings in Montana



8th grade students should be able to demonstrate relationships among closely related science principles. Identify evidence of chemical changes; explain and predict motions of objects using position time graphs; explain metabolism, growth, and reproduction in cells, organisms, and ecosystems; use observations of the Sun, Earth, and Moon to explain visible motions in the sky; and predict surface and ground water movements in different regions of the world. Explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle. Use evidence from investigations in arguments that accept, revise, or reject scientific models. Use scientific criteria to propose and critique alternative individual and local community responses to design problems.



8th grade students should be able to state or recognize correct science principles. Explain and predict observations of natural phenomena at multiple scales, from microscopic to global. Describe properties and common physical and chemical changes in materials; describe changes in potential and kinetic energy of moving objects; describe levels of organization of living systems—cells, multicellular organisms, and ecosystems; identify related organisms based on hereditary traits; describe a model of the solar system; and describe the processes of the water cycle. Design observational and experimental investigations employing appropriate tools for measuring variables. Propose and critique the scientific validity of alternative individual and local community responses to design problems.

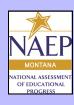
Overall Science	Overall Science	Overall Science
Small extent	Moderate extent	Large extent

NOTE: The NAEP Science scale ranges from 0 to 300. Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant. **SOURCE**: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Science Assessment.

Retrieved from http://nces.ed.gov/nationsreportcard/naepdata/dataset.aspx

National Assessment of Educational Progress (NAEP)- Emphasis on...

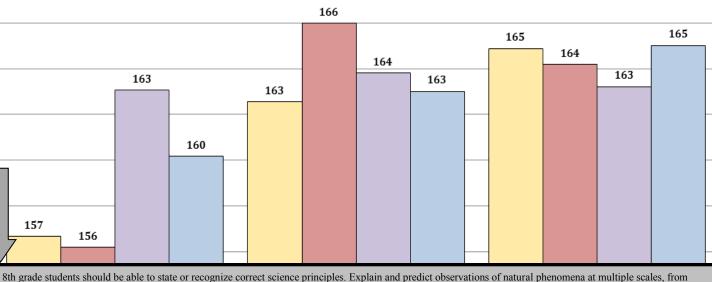
300							
215	Advanced						
	Draw a conclusion about soil perme	a-					
175	bility using data—Partial (CR)						
4-4	Describe the competition between tw	vo					
174	species—Complete (CR)						
171	_	entify a function of a human organ					
170	ystem (MC) Proficient						
170	Troncient						
167	escribe the evidence for chemical						
	Describe the energy transfer between	n					
165	two systems—Complete (CR)						
162	Read a motion graph (MC)						
	Draw a conclusion based on fossil						
157	evidence (MC)						
	Select and explain the useful propert	ties					
1.50	of a material used in an industrial						
156	process—Partial (CR)						
153	Predict a geological consequence of tectonic plate movement (MC)						
151	Identify the mechanism of a weather pattern (MC)	r					
131	Recognize a factor that affects the						
148	success of a species (MC)						
141	Basic						
	dentify the sequence of formation of						
136	he Earth's features (MC)						
	Identify an example of kinetic energ	v					
134	(MC)	۲					
	Predict the effect of an environment	al					
131	change on an organism (MC)						
	Explain an experimental setup to stu	ıdy					
128	populations of organisms (MC)	_					
	Recognize how plants use sunlight						
127	(MC)						
	Explain the effects of human land us	se					
122	on wildlife—Partial (CR)						
0	☐ Gr 08 - 2011 - MT - Emphasis on Inquiry						
	☐ Gr 08 - 2011 - MT - Emphasis on						
	Lab Skills						
	☐ Gr 08 - 2011 - MT - Emphasis on Observation Skills						
	☐ Gr 08 - 2011 - MT - Emphasis on						
	Problem-Solving						



8th Grade NAEP Science Findings in Montana



8th grade students should be able to demonstrate relationships among closely related science principles. Identify evidence of chemical changes; explain and predict motions of objects using position time graphs; explain metabolism, growth, and reproduction in cells, organisms, and ecosystems; use observations of the Sun, Earth, and Moon to explain visible motions in the sky; and predict surface and ground water movements in different regions of the world. Explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle. Use evidence from investigations in arguments that accept, revise, or reject scientific models. Use scientific criteria to propose and critique alternative individual and local community responses to design problems.



8th grade students should be able to state or recognize correct science principles. Explain and predict observations of natural phenomena at multiple scales, from microscopic to global. Describe properties and common physical and chemical changes in materials; describe changes in potential and kinetic energy of moving objects; describe levels of organization of living systems—cells, multicellular organisms, and ecosystems; identify related organisms based on hereditary traits; describe a model of the solar system; and describe the processes of the water cycle. Design observational and experimental investigations employing appropriate tools for measuring variables. Propose and critique the scientific validity of alternative individual and local community responses to design problems.

Overall Science Overall Science Overall Science
Small extent Moderate extent Large extent

NOTE: The NAEP Science scale ranges from 0 to 300. Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Science Assessment.

Retrieved from http://nces.ed.gov/nationsreportcard/naepdata/dataset.aspx

Assessment of Educational Progress (NAEP)- Emphasis on...

		National As
300	A 3 3	
215175	Advanced Draw a conclusion about soil permeability using data—Partial (CR)	NAEP MONTANA NATIONAL ASSESSMENT
174	Describe the competition between two species—Complete (CR) Identify a function of a human organ	NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS
171 170	system (MC) Proficient	8th grade students motions of objects
167	Describe the evidence for chemical Describe the energy transfer between two systems—Complete (CR)	and Moon to explain of phenomena at revidence from invicommunity response
162	Read a motion graph (MC)	

Draw a conclusion based on fossil

of a material used in an industrial

tectonic plate movement (MC)

Predict a geological consequence of

Identify the mechanism of a weather

Recognize a factor that affects the

Basic Identify the sequence of formation of

Identify an example of kinetic energy

Predict the effect of an environmental

Explain an experimental setup to study

success of a species (MC)

the Earth's features (MC)

change on an organism (MC)

populations of organisms (MC)

on wildlife—Partial (CR)

Science Interest

Science Relevance

Scientific Method

Writing Skills

Recognize how plants use sunlight

Explain the effects of human land use

☐ Gr 08 - 2011 - MT - Emphasis on

□ Gr 08 - 2011 - MT - Emphasis on

☐ Gr 08 - 2011 - MT - Emphasis on

☐ Gr 08 - 2011 - MT - Emphasis on

process—Partial (CR)

evidence (MC)

pattern (MC)

(MC)

157

156

153

151

148

141

136

134

131

128

127

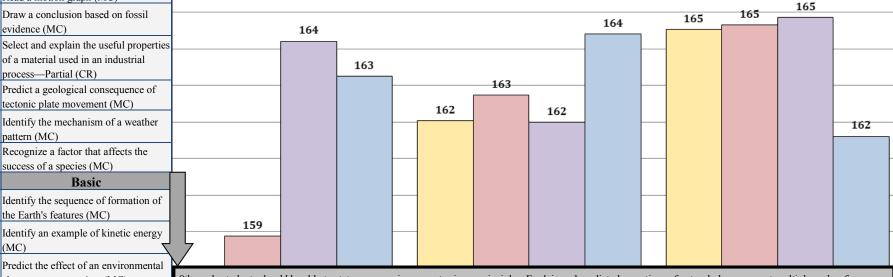
122

0

8th Grade NAEP Science Findings in Montana



idents should be able to demonstrate relationships among closely related science principles. Identify evidence of chemical changes; explain and predict bjects using position time graphs; explain metabolism, growth, and reproduction in cells, organisms, and ecosystems; use observations of the Sun, Earth, explain visible motions in the sky; and predict surface and ground water movements in different regions of the world. Explain and predict observations na at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle. Use m investigations in arguments that accept, revise, or reject scientific models. Use scientific criteria to propose and critique alternative individual and local esponses to design problems.



8th grade students should be able to state or recognize correct science principles. Explain and predict observations of natural phenomena at multiple scales, from microscopic to global. Describe properties and common physical and chemical changes in materials; describe changes in potential and kinetic energy of moving objects; describe levels of organization of living systems—cells, multicellular organisms, and ecosystems; identify related organisms based on hereditary traits; describe a model of the solar system; and describe the processes of the water cycle. Design observational and experimental investigations employing appropriate tools for measuring variables. Propose and critique the scientific validity of alternative individual and local community responses to design problems.



NOTE: The NAEP Science scale ranges from 0 to 300. Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Science Assessment. Retrieved from http://nces.ed.gov/nationsreportcard/naepdata/dataset.aspx

National Assessment of Educational Progress (NAEP)- Program Structured to...

	nativ
300	
215	Advanced
175	Draw a conclusion about soil permeability using data—Partial (CR)
174	Describe the competition between two species—Complete (CR)
171	Identify a function of a human organ system (MC)
170	Proficient
167	Describe the evidence for chemical change—Partial (CR)
165	Describe the energy transfer between two systems—Complete (CR)
162	Read a motion graph (MC)
157	Draw a conclusion based on fossil evidence (MC)
156	Select and explain the useful properties of a material used in an industrial process—Partial (CR)
153	Predict a geological consequence of tectonic plate movement (MC)
151	Identify the mechanism of a weather pattern (MC)
148	Recognize a factor that affects the success of a species (MC)
141	Basic
136	Identify the sequence of formation of the Earth's features (MC)
134	Identify an example of kinetic energy (MC)
131	Predict the effect of an environmental change on an organism (MC)
128	Explain an experimental setup to study populations of organisms (MC)
Programs	- MT - Program Structured to Commercial



■ Gr 08 - 2011 - MT - Program Structured to District Standards

■Gr 08 - 2011 - MT - Program Structured to Teacher Discretion

■Gr 08 - 2011 - MT - Program Structured to Department

Gr 08 - 2011 - MT - Program Structured to In-school Standards

Gr 08 - 2011 - MT - Program Structured to School Assessment Results

Gr 08 - 2011 - MT - Program Structured to State Standards

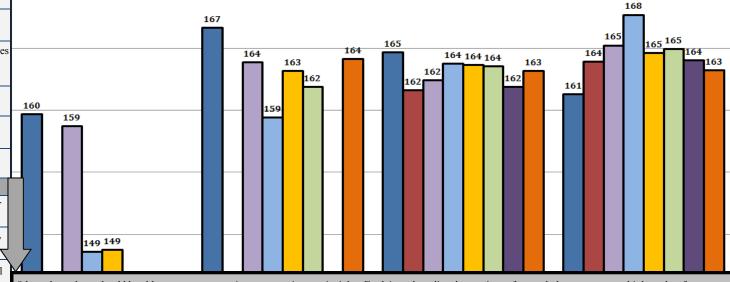
Gr 08 - 2011 - MT - Program Structured to State/District Assessment Results



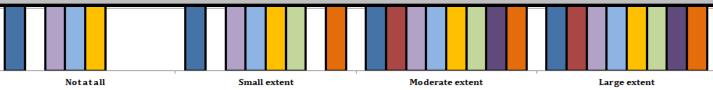
8th Grade NAEP Science Findings in Montana



8th grade students should be able to demonstrate relationships among closely related science principles. Identify evidence of chemical changes; explain and predict motions of objects using position time graphs; explain metabolism, growth, and reproduction in cells, organisms, and ecosystems; use observations of the Sun, Earth, and Moon to explain visible motions in the sky; and predict surface and ground water movements in different regions of the world. Explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle. Use evidence from investigations in arguments that accept, revise, or reject scientific models. Use scientific criteria to propose and critique alternative individual and local community responses to design problems.



8th grade students should be able to state or recognize correct science principles. Explain and predict observations of natural phenomena at multiple scales, from microscopic to global. Describe properties and common physical and chemical changes in materials; describe changes in potential and kinetic energy of moving objects; describe levels of organization of living systems—cells, multicellular organisms, and ecosystems; identify related organisms based on hereditary traits; describe a model of the solar system; and describe the processes of the water cycle. Design observational and experimental investigations employing appropriate tools for measuring variables. Propose and critique the scientific validity of alternative individual and local community responses to design problems.



NOTE: The NAEP Science scale ranges from 0 to 300. Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant. **SOURCE**: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Science Assessment.

Retrieved from http://nces.ed.gov/nationsreportcard/naepdata/dataset.aspx

National Assessment of Educational Progress (NAEP)

http://nces.ed.gov/nationsreportcard/itemmaps/index.asp

2011 Grade 8		NAEP Science Scale		
Content Classifications:				
Earth & Space Sciences	Physical Science	▲ Life Science		
		□ 190		
300			n the volcanic activity of a region (MC)	
•		■ 184 Recognize an effect of electr	ical forces (MC)	
290		• 184 Explain the formation of a roc	k based on its features—Partial (CR)	
	torn due to collinion of air manner. Complete (CD)	▲ 183 Recognize that plants produc	e their own food (MC)	
·	ern due to collision of air masses—Complete (CR)	■ 182 Select and explain the useful	properties of a material used in an industrial process—Ess	ential (CR)
280		▲ 180 Form a conclusion based on o	data about the behavior of an organism—Partial (CR)	
270		□ 180		
269 Describe the evidence for chemica	al change—Complete (CR)	 175 <u>Draw a conclusion about soil</u> 	permeability using data—Partial (CR)	
266 Identify chemically similar elements	s in the Periodic Table (MC)	▲ 174 Describe the competition betw		
	d draw graphs from data that compare insect behaviors			
260		171 Investigate the magnetic prop	erties of some common objects (MC)	
 256 Explain the formation of a rock bas 	sed on its features—Complete (CR)	170 Proficient		
250		□ 170	and all the same Partial (OR)	
▲ 247 Form a conclusion based on data a	about the behavior of an organism—Complete (CR)	= 167 Describe the evidence for che		
240		■ 162 Read a motion graph (MC)	between two systems—Complete (CR)	
▲ 231 Select and explain graph types and	d draw graphs from data that compare insect behaviors	Essential (CR) = 160		
230		• 157 Draw a conclusion based on	fossil evidence (MC)	
224 Explain a change in energy due to	friction (MC)		properties of a material used in an industrial process—Part	ial (CR)
221 <u>Draw a conclusion about soil perm</u>			ence of tectonic plate movement (MC)	
220		• 151 Identify the mechanism of a w	reather pattern (MC)	
215 Advanced		□ 150		
214 Explain the effects of human land to	use on wildlife_Complete (CD)	▲ 148 Recognize a factor that affect	ts the success of a species (MC)	
	use on whalife—complete (CK)	141 Basic		
213 Predict a lunar phenomenon (MC)	to a due to collision of six seconds. Postial (OP)	□ 140		
	ern due to collision of air masses—Partial (CR)	 136 Identify the sequence of form 	ation of the Earth's features (MC)	
210		■ 134 Identify an example of kinetic		
208 Explain the formation of a rock bas	• •		enmental change on an organism (MC)	
	erties of a material used in an industrial process—Comp			
 201 Relate characteristics of air masse 	es to global regions (MC)		to study populations of organisms (MC)	
▲ 200 Select and explain graph types and	d draw graphs from data that compare insect behaviors			
▲ 200 Identify the main source of energy	for certain organisms (MC)	• 122 Explain the effects of human 120	and use on Wilding—Partial (CR)	
200		120		
■ 198 Identify the atomic components of	the molecule (MC)	0		
■ 195 Determine a controlled variable in a	a chemistry investigation (MC)			
• 190 Identify a source of energy for Ear	rth's water cycle (MC)	Content Classifications:		
∃ 190		Earth & Space Sciences	■ Physical Science	▲ Life Science
Blue highlight= hyperlink to NA	AED 1 14			